ABSTRACT OF THE DISCLOSURE

An ultrasound system and method for calculation and display of tissue deformation parameters are disclosed. A method to estimate a strain rate in any direction, not necessarily along the ultrasound beam, based on tissue velocity data from a small region of interest around a sample volume is disclosed. Quantitative tissue deformation parameters, such as tissue velocity, tissue velocity integrals, strain rate and/or strain, may be presented as functions of time and/or spatial position for applications such as stress echo. For example, strain rate or strain values for three different stress levels may be plotted together with respect to time over a cardiac cycle.